SKF Microlog Advisor Pro

CMXA 45

Portable maintenance instrument

Easy to use three channel instrument designed for a range of maintenance and quality inspection checks

The SKF Microlog Advisor Pro is a versatile stand alone instrument combining the functionality of several instruments into one hand held device. With an intuitive user interface, the SKF Microlog Advisor Pro is easy to use, by either expert of non-expert analysts, and is ideal for customers who do not require a route based solution. If necessary, recorded data can be uploaded to the Analysis and Reporting manager or Microsoft Excel for further analysis and report generation.

Key features

- Available in a range of kits designed for specific applications, such as conformance testing, balancing, analyzing and bump testing, includes all the relevant accessories to get the done job done
- Easy activation of additional modules to extend funcxtionality
- Memory upgrade via SD card
- On-board decision support with up to 64 graded alarms (Conformance Check module)
- Display real images of machinery and transducer positions
- Easy operation function keys
- Extended battery life and lightweight ergonomic design supports eight hours of continuous use

At the heart of the SKF Microlog Advisor Pro is a cutting edge hand held computing engine combined with high performance data acquisition hardware and DSP technology, which provide three channels, a frequency range of 40 kHz F_{max} and up to 12 800 lines of resolution. It has a bright easy-to-read screen; green, yellow and red color coding to highlight the status of a particular alert if invalid measurements are taken, and provides a grading of current machinery health. These features all combine to help facilitate valid data collection without the need for vibration expertise.

Machine assessment tool with built in decision support

Used around the world by personnel such as:

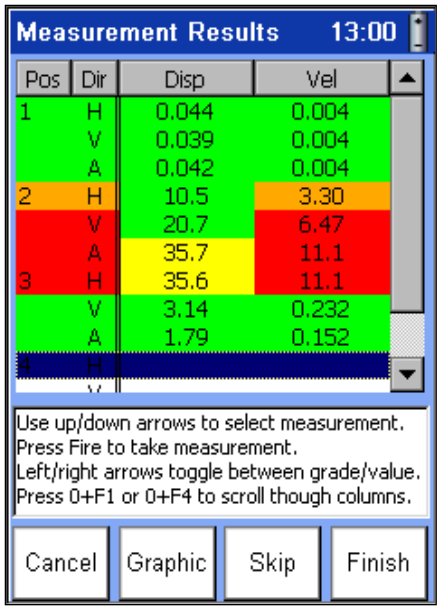
- Quality and production inspection engineers
- Installation engineers
- Repair centers
- Servicing personnel
- Mechanics
- Maintenance engineers
- Noise and vibration specialists

Kits designed to meet your business needs

The SKF Microlog Advisor Pro is available in a range of pre-configured kits that provide built in application expertise with easy to follow, step-by-step instructions. Using these application specific kits, data may be stored in the SKF Microlog Advisor Pro for future review, and can be transferred to the host computer in comma separated value format (.csv). If your analysis needs expand, further functionality can be added without the need to purchase another instrument.

Conformance Test kit – general machine health checks

CMXA 45-1A-SL



Transforming the SKF Microlog Advisor Pro into a tool for inspection and maintenance, automated assessments compare vibration levels with established limits. Pass or fail color coded indication is clearly displayed to confirm how your product meets the required standards, both at final assembly and after initial installation. Up to 64 individual fault criteria are simultaneously assessed and an on screen indication warns if alarm levels are reached. The unit also uses color coding to alert users to invalid measurements and abnormal conditions. Included with the conformance test kit is a set of pre-configured SKF templates to enable you to test to any of the ISO 10816 standards.

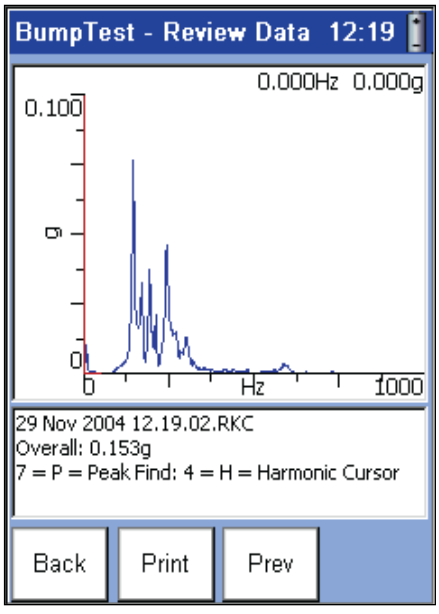
These templates can be customized to add additional decision support or you can create your own custom standards using vibration limits set by your own vibration experts using a PC based application included with this kit.

In addition to displaying a simple color-coded grading of machinery health, the SKF Microlog Advisor Pro Conformance Test kit automatically saves the vibration spectra so further analysis can be carried out by vibration experts.

Bump Test and FFT Analyzer kit

CMXA 45-2A-SL

The Bump Test and FFT Analyzer kit is designed to transform the SKF Microlog Advisor Pro into a powerful, yet easy to use tool for measuring noise or vibration signals by breaking them down into their component frequencies. The user friendly interface displays spectrum and phase information in a simple, easy to understand format enabling you to quickly characterise your machinery and make a diagnosis or identify areas for further analysis. The SKF Microlog Advisor Pro also allows you to quickly and easily assess the motion between two points. By providing a 'phase vector' reading (needed for diagnosis of some machine faults) an operator can build an understanding of the relative motion of individual parts of the machine. Placing sensors, and setting up and taking measurements can all be performed without the need to stop the machine running. With built in headphone support, your SKF Microlog will allow you to listen to signals while capturing the data.



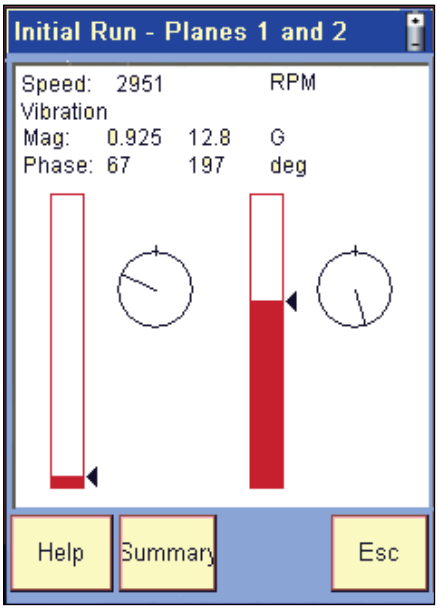
The Bump (rap) Test functionality is also included with this kit. It enables you to carry out tests for the identification of the natural resonant frequencies of a mechanical structure. In some cases, the presence of a resonance can cause excessive levels of vibration and / or noise. This test helps you to identify the source of spectral components using data gathered from an accelerometer or other sensors. There are no requirements for an instrumental hammer to be connected to capture the data with the Bump Test kit.

Balancing kit

CMXA 45-BAL-K-SL

The benefits of properly balanced machinery can include a reduction of structural stress, vibration, and noise levels. Machinery that is properly balanced runs more efficiently and often has the added benefits of extended bearing life and reduced operating costs.

The SKF Microlog Advisor Pro balancing kit resolves single plane, two plane, and static couple balances with high precision on rotating machinery parts such as rotors for electric motors, fans, turbines, propellers and pumps. Clear, comprehensive setup menus and display screens with graphical data representations allow ease of operation. Vibration and phase readings are taken to establish the magnitude and position of the unbalance force. On screen instructions advise where to attach the correct amount of compensation weight – or where and how much material to remove. The SKF Microlog Advisor Pro Balancing kit is ideally suited for:



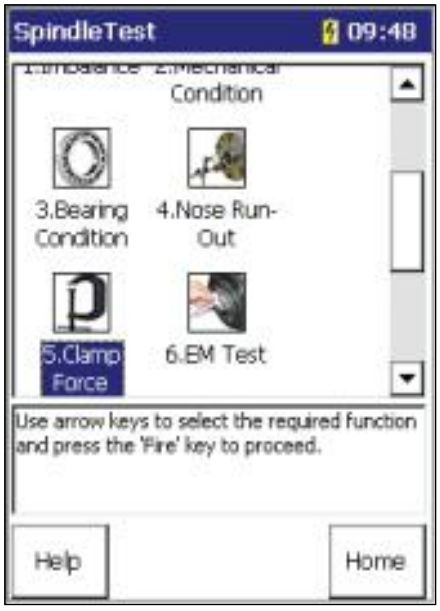
- High precision one or two plane balancing
- Static or dynamic couple balancing
- Split weight solutions
- Solutions through 360 degrees or fixed weight locations

The inclusion of the Bump Test and FFT Analyzer modules with this kit allows you to correctly diagnose that the high 1X vibration is a true unbalance before attempting a balance solution.

SKF Spindle Assessment kit

CMXA 45-MTX-K-SL

As world leader in the manufacturer of rolling bearings, SKF operates a multitude of machine tools worldwide. Originally based on experience in our bearing production factories, spindle engineering units and super precision bearing knowledge, SKF has developed a global concept consisting of detailed machine tool refurbishment procedures, acceptance criterias, specialized equipment, adapted business processes and global knowledge sharing systems for spindles. The SKF Spindle Assessment kit has been developed in conjunction with the SKF Machine Tool Precision Services and is designed to perform nine tests on machine tool spindles:



1. Imbalance
2. Mechanical condition
3. Bearing condition
4. Tool nose run out
5. Clamp force (ISO, HSK)
6. EM distance
7. Belt tension
8. Speed accuracy
9. Resonant frequency

The easy-to-follow instructions, written by experts in spindle analysis, guide the user in assessing the general condition of a wide variety of spindles under various operating conditions, from spindles mounted in machine tools to those mounted in test rigs. Irrespective of whether your spindle is used for roughing, finishing, critical or ultra finish machining, the colorful display will show you if your spindle is still operating within boundaries set by the experts using an easy to read traffic light indicator system. The resonant frequency test has been taken directly from our world leading vibration analysis instruments to help you get the right answer the first time.

Included in this kit are the Spindle Test, Balancing and Run up Coast down SKF Microlog modules.

SKF Idler Sound Monitor kit

CMXA 45-ISM-K-SL

In many industries, especially in mining and cement, conveyors are an important part of a material handling system. Failure of an idler can lead to belt damage, expensive downtime and lost production. The SKF Idler Sound Monitor kit was developed for early detection of faults in conveyor support and return idlers. Using acoustic enveloping technology, the SKF Idler Sound Monitor distinguishes between the sounds of a good idler and a faulty one. It helps avoid unplanned downtime, costly belt damage and hazardous repairs as the kit also provides shorter measurement time and earlier fault detection than a thermographic camera.

The SKF Idler Sound Monitor has a simple to understand "traffic light" visual display and headphones with audible condition alarm for detection of faults. With the SKF Idler Sound Monitor module, the screen of the SKF Microlog displays a simple to understand "traffic light" visual alarm:

- Green for OK
- Yellow to indicate a "suspect" idler
- Red to indicate a "bad" idler

The kit serves as an alternative to traditional "walk arounds" that depend on the skill of the worker to listen and recognize a faulty idler. Because the microphone can detect faulty idlers on the far side of the belt, there is no need to walk both sides of it and the worker is able to maintain a safe distance from the moving conveyor belt during the measurements. The instrument can be used with one hand, and therefore, complies with safe procedures for three-point contact while working in a plant or mine.

SKF Marine Condition Monitoring kit

CMXA 45 MX-SL / CMXA 45 MXP-SL

The SKF Marine Condition Monitoring kit has been developed specifically for the demanding requirements of the marine industry and tough onboard conditions. It is well suited for use on a wide range of vessels, including container ships, ferries, Ro-Ro ships, fishing vessels, dredging, tug boats and offshore supply. This well proven, rugged solution features preconfigured, marine-specific software that makes it quick and easy to monitor the condition of critical auxiliary machinery. In fact, anybody onboard can understand the measurement results.

The software offers two types of models. Basic models are based on Class and evaluate overall vibration conditions. SKF marine models, on the other hand, go a step deeper by looking at the machine component level. These models are part of the SKF marine library, covering 85% of all equipment onboard. It allows users to go beyond measuring the overall vibration levels recommended by Class and also assess the condition of specific components and identify possible problems. Basic models can be used for equipment not covered by SKF marine models.

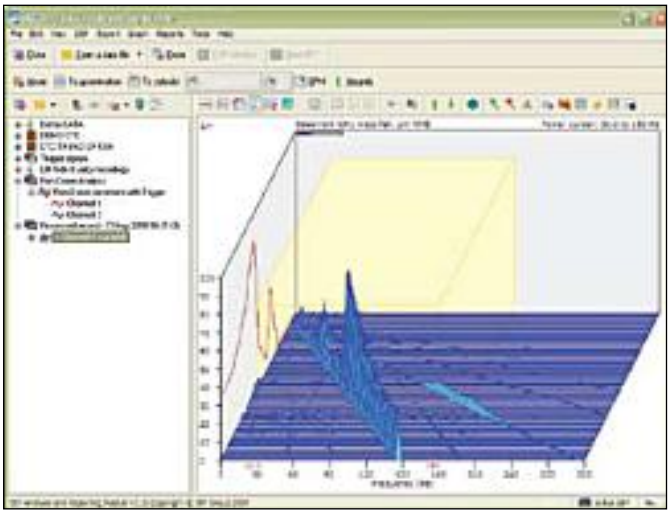
With the SKF Marine Condition Monitoring kit, even a non-trained user can understand the results of vibration data measurements and locate the source of the fault in the machinery. The marine-specific software is preconfigured to convert the measured data into an easy-to-understand, colour-coded result.

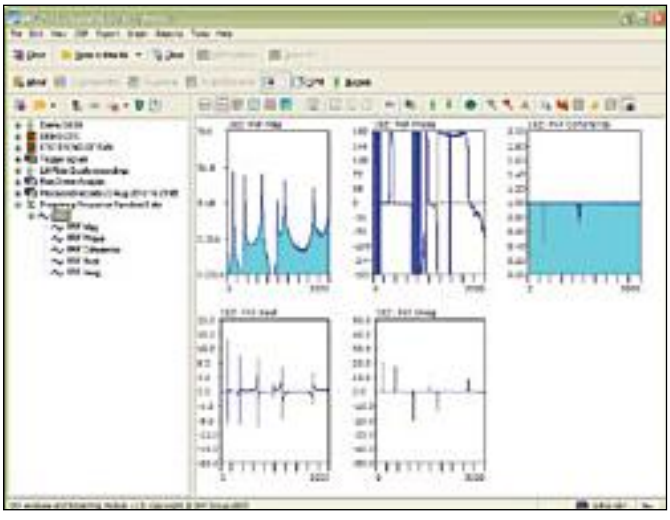
The performance of each and every auxiliary machine is vital. Even a small problem can ruin your timetable or keep your ship in port. The cost could be enormous. The SKF Marine Condition Monitoring kit helps maximize the reliability and availability of your auxiliary equipment, including pumps, fans, compressors, purifiers and electric motors.

Analysis and Reporting manager

Data for expert analysis

Although the SKF Microlog Advisor Pro is designed to enable non-expert personnel to collect data, sometimes this data may require specialist analysis and interpretation. The SKF Microlog Advisor Pro data can be transferred to a desktop PC using ActiveSync, enabling the test results to be uploaded to the Analysis and Reporting manager, a supporting application for the SKF Microlog modules. Once uploaded, the data is automatically shown in the application's main window, and a single mouse click is all that is needed to view the data in a powerful, interactive graphical plot. The Analysis and Reporting manager also provides you with a range of post-processing features that allow you to get the most out of your SKF Microlog Advisor Pro data. In addition, the Analysis and Reporting manager provides a direct link to Microsoft Word for report generation. Create your own report templates to provide professional reports with a single mouse click.





Specifications

Input sources

Acceleration, velocity, and displacement from hand-held or installed vibration sensors or monitoring systems.

- AC / DC sensors
- Pressure sensors
- Temperature sensors
- Keyboard entry: Measurements read from indicators or installed instruments entered in engineering units
- Universal tachometer
- Visual inspections: Added to measurement as coded notes

Preprocessing

- Enveloper (demodulator): With four selectable input filters for enhanced bearing and gear mesh fault detection
- Filter selection:
  - 5 Hz to 100 Hz
  - 50 Hz to 1 kHz
  - 500 Hz to 10 kHz
  - 5 kHz to 40 kHz
- Input parameters:
  - Tachometer: TTL / analogue programmable to ±25 V
  - RPM range 1 to 99 999
  - Tachometer power supply output +5 V at 100 mA
- Input over-voltage protection:
  - AC ±50 V peak
  - DC ±50 V sustained
- Dynamic range: >90 dB (24 bit ADC sigma-delta)
- Input connectors:
  - CH1: Six pin Fischer, CH1, CH2, CH3
  - CH2: Six pin Fischer, CH2, CH3
  - USB host / CHR / headphone: USB keyboard, CHR, headphones
  - USB device / power / trigger: Seven pin Fischer trigger in, trigger tachometer power supply, USB COMMS, charger
- Input signal range: ±25 V maximum

Data processing and storage

- Microprocessor: Marvell 806 MHz PXA320
- Internal storage: 128 MB (capable of storing approximately 4 000 spectra)
- SD card: SD memory card up to 16 GB

Measurement

- Range: DC to 40 kHz
- Averaging: 1 to 255 time averages, 1 to 4 096 spectral averages
- Averaging type: RMS, exponential
- Cursor: Fixed and cursor lock. Single, harmonic and peak pick.
- Trigger modes: Free run or external trigger (trigger slope and amplitude)
- Resolution: Programmable 100, 200, 400, 800, 1 600, 3 200, 6 400 and 12 800 lines

- Measurement windows: Hanning, flat top and rectangular
- Multi-point automation: Up to 12 measurements can be listed for one button automated data collection at each measurement location

Data displays

- Single and dual channel spectrum, single and dual channel time, phase table, process, cross channel phase
- Simultaneous spectrum, time waveform, peak hold averaging
- Up to 12 bands (fixed or order base) downloadable from host software

Power

- Battery: Li-ion smart battery pack
- Eight hours continuous operation minimum

Physical data

- Dedicated keys: Up, down, right, and left two enter keys for right and left hand operation, four function keys
- Hot keys: Peak find, harmonic, expand
- LCD screen: Color 1/4 VGA 320 × 240 pixels (54 × 72 mm) viewable
- Case: High impact ABS with IP 65 dust and splash rating
- Weight: 715 g *(1.6 lb.)*
- Size (height × width):
  - Narrowest point: 186 × 93 mm *(7.4 × 3.7 in.)*
  - Widest point: 186 × 134 mm *(7.4 × 5.4 in.)*
- Drop test: 2 m *(6.6 ft.)*, to MIL STD 810 specifications

Environmental

- Certifications:
  - **Special conditions per certifications**
  - ATEX: Ⓔx II 3 G Ex ic IIC T4 Gc (Ta = –10 °C to +50 °C)
  - IECEx: Ex ic IIC T4 Gc (Ta = –10 °C to +50 °C)
  - CE rated
  - CSA Class I, Division 2, Groups A, B, C, D, temperature code T4A@Ta = 50 °C
- IP Rating: IP 65
- Temperature ratings:
  - Operating temperature: –10 to +50 °C *(14 to 122 °F)*
  - Storage temperature: –20 to +60 °C *(–4 to +140 °F)*
- Humidity: 95% non-condensing

Communications

- USB communication

Host software

- The SKF Microlog Advisor Pro connects directly to the SKF's Analysis and Reporting manager, a supporting application for SKF Microlog Modules for analysis and report generation. Data is stored in a .csv format and can easily transfer into Microsoft Excel or other third party software.

Ordering information

The SKF Microlog Advisor Pro is available in five different kits which includes:

- Hard carrying case, rubber bump, shoulder strap, hand strap, SD card, user manual (CD), USB communication/power splitter cable, universal power supply and battery pack.

CMXA 45-1A-SL

Conformance Test kit includes the Conformance Check module, full suite of SKF test templates, standard accessories and one accelerometer with integral cable.

CMXA 45-2A-SL

Bump Test and FFT Analyzer kit includes the Bump Test and FFT Analyzer modules, standard accessories and two accelerometers with integral cables.

CMXA 45-BAL-K-SL

Balancing kit includes the Balancing, Bump Test and FFT Analyzer modules, standard accessories, CMAC 5030-K Laser tachometer kit, phase reference magnetic holder and two accelerometers with integral cables.

CMXA 45-MTX-K-SL

SKF Spindle Assessment kit includes Spindle Test, Balancing, and Run up Coast down modules, standard accessories, two accelerometers with integral cables, laser tachometer kit, laser tachometer mount, run-out gage (Graduation 0,001 mm, range 0,14 mm, reading 0-70-0, accuracy 3 µm), belt tension checkers, SKF Spindle Assessment guide (on CD).

CMXA 45-ISM-K-SL

SKF Idler Sound Monitor kit includes the SKF Idler Sound Monitor and FFT Analyzer modules, a high frequency microphone and a connector cable encased in a rugged hand-held parabola, headphones with audible condition alarm, a parabolic windjammer and standard accessories.

SKF Marine Condition Monitoring kit

The SKF Marine Condition Monitoring kit is available in two variants:

CMXA 45 MX-SL

The CMXA 45 MX-SL SKF Marine Condition Monitoring kit includes the SKF Microlog Advisor Pro instrument, Conformance Check module, full suite of SKF marine library templates, pre-printed stickers, studs, standard accessories and one accelerometer with integral cable.

CMXA 45 MXP-SL

The CMXA 45 MXP-SL SKF Marine Condition Monitoring kit includes everything in the CMXA 45 MX-SL kit and also includes the Analysis and Reporting manager PC software.

Upgrade options

The SKF Microlog Advisor Pro is shipped with the full SKF Microlog suite of modules installed. To add additional functionality, simply purchase the module and enter the supplied license key.

Complete specifications and details about the SKF Microlog modules are available in the SKF Microlog Module Suite catalog (SKF publication CM/P8 11083 EN).

- Conformance Check module [CMXA MOD-CTC-SL]
- Bump Test and FFT Analyzer modules [CMXA MOD-AAB-SL]
- Balancing module [CMXA MOD-BAL-SL]
- Data Recorder module [CMXA MOD-REC-SL]
- SKF Spindle Assessment module [CMXA MOD-MTX-SL]
- SKF Idler Sound Monitor module [CMXA-MOD-ISM-SL]

Software options

- Analysis and Reporting manager [CMSW 7311-EN]

Optional accessories

A number of accessories are available to complement the SKF Microlog Advisor Pro. For technical details or information on any item, please contact your local SKF Reliability Systems sales representative. Specifications and photographs of the SKF Microlog series accessories are available in the SKF Microlog Accessories catalog (SKF publication CM/P1 11643 EN).

Hardware

- Infrared thermometer [CMAC 4200-SL]
- Infrared thermometer, CE compliant [CMAC 4200-CE-SL]
- Triax accelerometer kit [CMAC 4370-K]
- Laser tachometer kit [CMAC 5030-K]
- ICP Microphone with integral preamplifier kit [CMAC 5084]
- AC / DC current clamp [CMAC 5208]
- Optical phase reference kit [CMSS 6155XK-U-CE]
- Optical phase reference magnetic holder [CMAC 6156]
- Strobe light [CMSS 6165K-AX]
- SKF Idler Sound Monitor accessory kit [CMAC 5410]

Battery and power supply

- Universal power supply [CMAC 5090]
- Battery [CMAC 5031]

Accelerometers

- Accelerometer, general purpose, low profile, side exit, industrial, non-NI, with 1/4-28 and M6 mounting studs [CMSS 2200]
- Accelerometer, general purpose, low profile, side exit, industrial, non-NI, with M8 mounting stud [CMSS 2200-M8]
- Accelerometer, CSA approved, general purpose, industrial [CMSS 793-CA]
- Accelerometer, small footprint with integrated cable [CMSS 2111]
- Accelerometer, small diameter, high frequency [CMSS 732A]
- Medium duty magnetic base, 35 mm *(1.5 in.)* diameter [CMSS 908-MD]

Cables

Accelerometer cables

- Triaxial accelerometer coiled cable [CMAC 5009]
  - for use with triax accelerometer kit CMAC 4370-K
- High frequency accelerometer cable [CMAC 5061]
  - for use with CMSS 732A accelerometer
- Accelerometer coiled cable, 1,8 m *(6 ft.)* [CMAC 5209]
- Accelerometer coiled cable with safety breakaway, 1,8 m *(6 ft.)* [CMAC 5209-06S]
- Accelerometer coiled cable, 3 m *(10 ft.)* [CMAC 5209-10]

Tachometer cables

- BNC tachometer straight cable, 1 m *(3.3 ft.)* [CMAC 5211]
- Laser tachometer kit, straight cable, 2 m *(6.6 ft.)* [CMAC 5213]
  - for laser tachometer kit CMAC 5030-K (sold with kit only)
- Laser tachometer kit, straight cable, 2 m *(6.6 ft.)* [CMAC 5214]
  - for laser tachometer kit CMAC 5030-K (sold individually)

Ordering information (continued)

Extension cables

- CHX signal input straight extension cable, 5 m *(16.4 ft.)* [CMAC 5036]
- CHX signal input straight extension cable, 10 m *(32.8 ft.)* [CMAC 5037]
- Tachometer straight extension cable, 5 m *(16.4 ft.)* [CMAC 5043] – for use with laser tachometer kit CMAC 5030-K
- Tachometer straight extension cable, 10 m *(32.8 ft.)* [CMAC 5044] – for use with laser tachometer kit CMAC 5030-K

Miscellaneous cables

- USB communication / power splitter straight cable, 2 m *(6.6 ft.)* [CMAC 5019]
- Fischer to BNC signal input cable [CMAC 5088]
- Power / trigger splitter straight cable, 30 cm *(11.8 in.)* [CMAC 5032]
- Audio headphone straight cable [CMAC 5078]
- Infrared thermometer gun cable [CMAC 5087]
- Input to strobe light cable [CMAC 5404]
- Output from strobe light cable [CMAC 5406]

Miscellaneous accessories

- Shoulder strap [CMAC 5010]
- Rubber boot [CMAC 5015]
- Hand strap [CMAC 5020]
- Instrument soft cover [CMAC 5024]
- Carrying case [CMAC 5026]
- Hard shell carrying case [CMAC 5029]
- Fischer and audio connector cover set [CMAC 5075]
- Shoulder strap, leather, hazardous areas [CMAC 5113]
- Audio headset, hard hat compatible [CMAC 5403]
- Screen protector (5 pieces) kit [CMAC 6139]
- 4 GB SD Card [CMAC 5077]

Product Support Plans

SKF is committed to providing the highest degree of customer support in the industry. Product Support Plans (PSP) extend the standard product warranty for an additional length of time to continue your unlimited access to Technical Support, global repair coverage and more.

Protect your investment

Product Support Plans help to make sure that your equipment is maintained to the highest standards. Condition monitoring products are an investment, and a Product Support Plan is a great way to protect your investment for years.

Greater peace of mind

- Firmware and / or software upgrades keep your products advancing with current industry standards*
- Unlimited technical support from knowledgeable professionals can save you time and frustration by quickly resolving problems
- Data accuracy with unlimited calibrations that comply with ISO standards
- Loaner equipment supplied when your product is brought in for service*
- Hassle-free repairs. We've got you covered with parts, labor and shipping.

Premier product support plans also include a full SKF @ptitude Exchange subscription. SKF @ptitude Exchange is SKF's knowledge portal, complete with white papers, articles, interactive services, tutorials and more – available 24 hours a day to help build your staff's asset maintenance and reliability expertise.

*Provided with Premier PSP coverage.

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